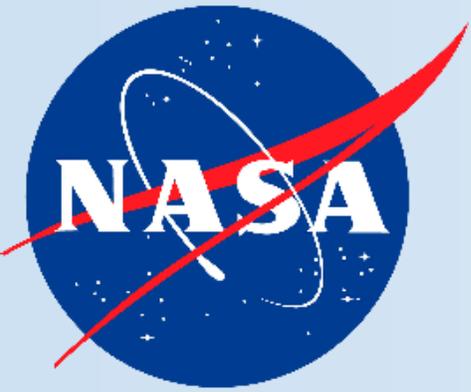


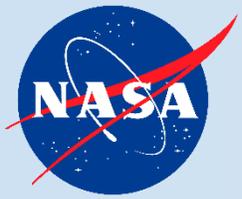
# ACTIVATE HU-25 Falcon DLH Data Update

- Addressing the RH Issue -

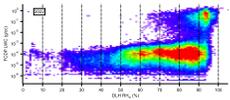
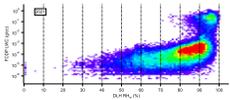
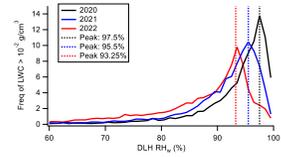
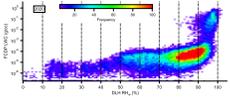
Glenn Diskin, Josh DiGangi, Yonghoon Choi, Mario Rana, John Nowak  
NASA Langley Research Center

ACTIVATE Science Team Meeting  
11/14/2023

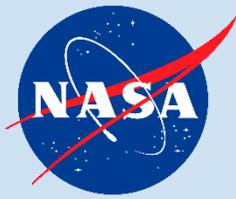




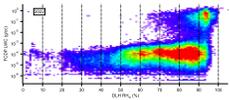
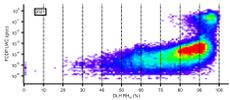
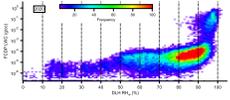
# Product Evaluation (Slide from 2022 STM)



- Derived from DLH water vapor and static temperature (Thornhill)
- DLH does not always report in very dense cloud, can explain some low bias, but unlikely to statistically vary with time



# Product Evaluation (2023 R1 DLH Update)

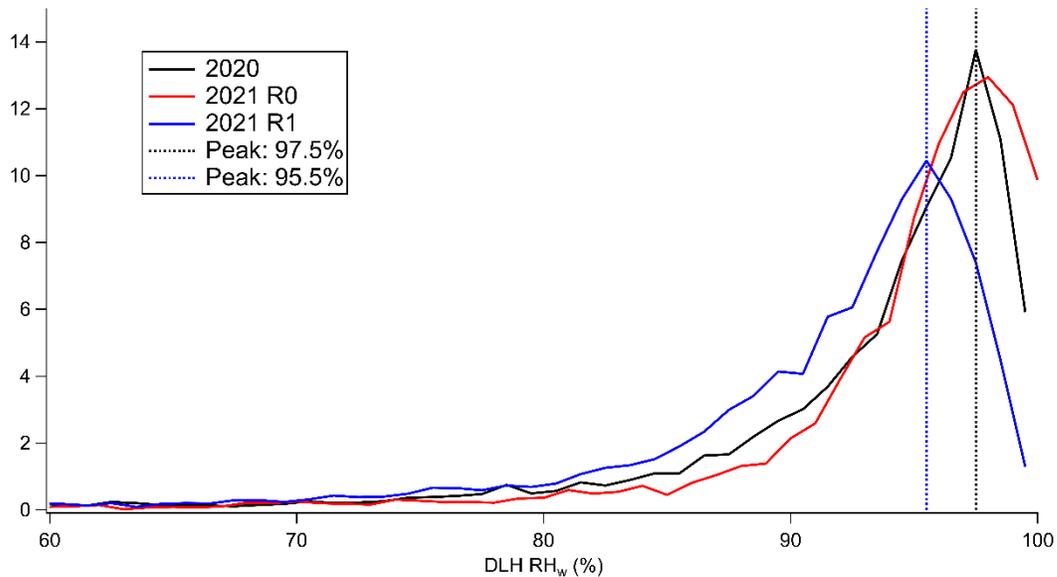


- DLH mixing ratio and RH data rely on independent measurements of temperature and pressure
  - Mixing ratio not very sensitive to small changes in T
  - RH very sensitive to small changes in T
- In April 2021:
  - HU-25 TAT Probe Failed
  - Probe was replaced, and used for remainder of 2021 and all of 2022 flights
- Probe was calibrated in 2023
- Temperature data updated in Sept 2023
  - new T about 0.75 °C lower than before
- DLH mixing ratio and RH updated, based on updated temperatures
  - 2021 finished and archived
  - 2022 finished but not yet archived

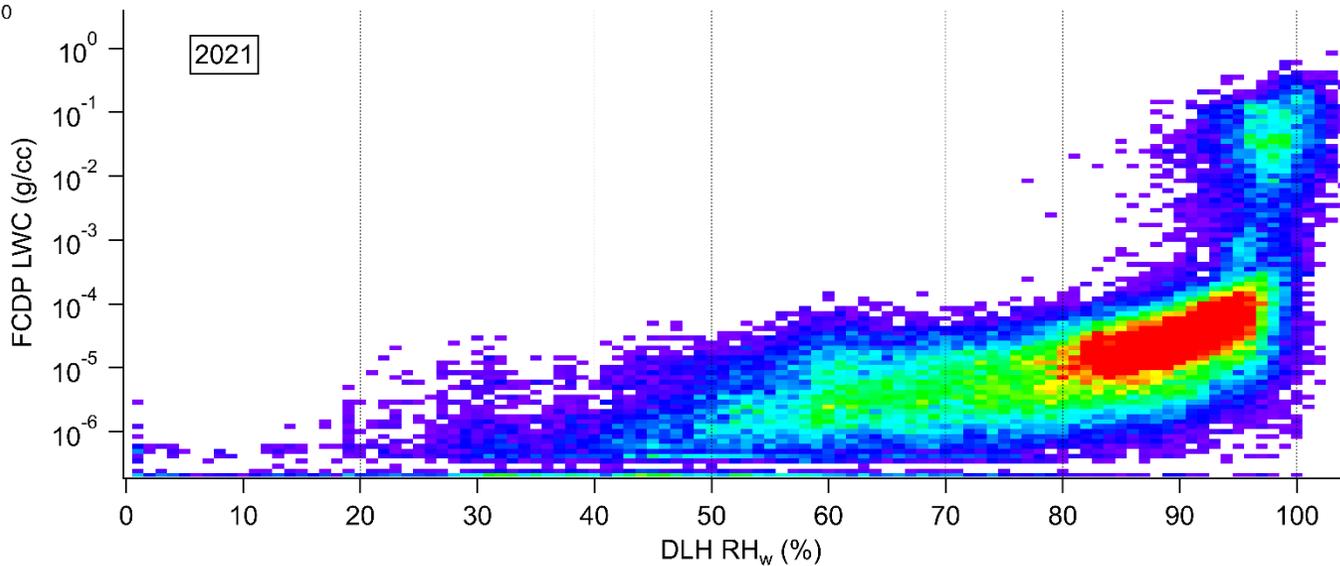
static  
dense  
but unlikely



# Product Evaluation (2023 R1 DLH Update)



Updated 2021 data now agree with 2020  
Expect 2022 to be similar





# Product Evaluation (2023 R1 DLH Update)



Sample 2022 Histograms

